

# Psychological and socio-cultural adaptation of immigrant and national adolescents in Australia: A test of the acculturative stress hypothesis

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**Abstract:** Purpose: The first aim of this study was to test the acculturative stress hypothesis within the Australian context predicting that immigrant adolescents are more prone to psychological and socio-cultural adaptation problems than their national Australian peers. The second aim of the study was to profile the socio-demographic factors underlying adaptation problems. Methods: The study utilised stratified surveys conducted by the New South Wales Ministry of Health during the years 2005-2008. The surveys collected information on socio-demographics, and psychological problems (i.e. emotional problems) and socio-cultural problems (i.e. hyperactivity-inattention, peer problems, and conduct problems). Adolescents aged 11-15 years ( $n = 5,779$  for the total sample;  $n = 638$ ,  $n = 5054$ , for immigrants and nationals, respectively) were included. Logistic regression analyses, taking observations' weights into account, were used for the adaptation problems outcomes. Results: The two groups differed in socio-cultural adaptation problems only (specifically in hyperactivity-inattention), with nationals having greater odds for this than immigrants even after adjusting for socio-demographics (adjusted OR = 2.23; 95% CI = 1.23—4.06). While immigrant adolescents' sex was associated with hyperactivity-inattention problems only, sex was associated with emotional problems, hyperactivity-inattention problems, and conduct problems among national adolescents. In addition, mothers' education was associated with conduct problems and household income was associated with peer problems among national adolescents only. Conclusions: Contrary to the acculturative stress hypothesis, this study shows that immigrant adolescents do not seem maladaptive. In addition, certain socio-demographic factors play a differential role in the emergence of adaptation problems among immigrant and national adolescents.

**Keywords:** Immigrant Adolescents, Acculturative Stress, Psychological Adaptation, Socio-Cultural Adaptation

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## 1. Introduction

Within the psychology of immigration literature it is presumed that the coping of immigrants to cultural change induced by intercultural experiences, a coping process denoted as cultural adjustment, can be best understood through two main theories, Stress and Coping Theory (SCT) [1] and Culture Learning Theory (CLT) [2]. SCT conceptualises cultural adjustment as a result of coping with stress, and CLT conceptualises cultural adjustment as result of cultural learning. Strengths from both theories have led researchers in the field [3, 4, 5, 6, 7] to identify two distinct dimensions of immigrant individuals' cultural adjustment, namely psychological adaptation and socio-cultural adaptation. Psychological adaptation originates from SCT and highlights the affective aspects of cultural adjustment — it

refers more specifically to emotional well-being and satisfaction. Socio-cultural adaptation, in contrast, originates from CLT and is largely concerned with behavioural aspects of cultural adjustment — it refers more specifically to the acquisition of the culturally appropriate skills needed to operate effectively in a specific social or cultural milieu and the ability to fit in.

For a long time now, the presumption persists that immigrants would necessarily have impaired psychological and socio-cultural adaptation due to the distress inherent in intercultural contact or to the challenges and difficulties imposed by cultural change [8]. This phenomenon is referred to as 'acculturative stress' [9]. Acculturative stress outcomes are expected to be further exacerbated for immigrant adolescents as adolescents presumably, compared to adults, do not have the emotional and cognitive maturity to deal

with cultural challenges during this already stressful and sensitive developmental stage. Immigrant adolescents need, for instance, to construct a positive ethnic identity within a multiethnic context and to deal with different expectations from their cultural community and the wider society of settlement which on their own may cause considerable stress during this period [9].

Empirical investigation of the acculturative stress hypothesis among adolescents has, however, yielded inconclusive results.

Research findings have, for instance, shown that Hispanic and Mexican American adolescents have elevated rates of psychological symptoms including depression, anxiety, and stress compared to their national peers [10, 11]. Related research concluded that Latino adolescents were at a greatest risk for anxiety, depression, suicidal ideation, and behavioural problems compared to national peers [12]. Such trends were also evident for immigrants internationally. For example, immigrant adolescents in Ireland were more frequently diagnosed with attention-deficit hyperactivity and pervasive developmental problems than national Irish [13]. Likewise, a cross-national European study including Finland, the Netherlands, Norway, Portugal, and Sweden (using a subset of the International Comparative Study of Ethnocultural Youth data; [14]), reported that immigrant adolescents showed worsened psychological adaptation [3].

Other research findings, however, disconfirmed the acculturative stress hypothesis. Research within the context of the United States using a large national sample ( $n = 20,000$ ) concluded that Asian and Latin American adolescents were less likely to experience emotional problems, antisocial behavioural problems, and involvement in delinquent acts, violence, and drug alcohol use than their national peers [15]. Likewise, another large national sample study of adolescents ( $n = 13,350$ ) found that immigrant adolescents were less depressed and had more positive well-being than their national peers [16]. Such trends were also evident in other countries. For instance, Albanian and Serbian adolescents in Italy reported lower levels of emotional problems and aggressive behaviours than their mainstream Italian counterparts; Immigrants and their national peers did not differ with reference to their prosocial behaviour and depressive symptoms [17]. Likewise, the International Comparative Study of Ethnocultural Youth (ICSEY) carried out in 13 participant countries including Australia ( $n = 611$ ), Canada ( $n = 396$ ), New Zealand ( $n = 499$ ), United Kingdom ( $n = 240$ ), United States ( $n = 609$ ) concluded that immigrant adolescents had better psychological and socio-cultural adaptation than their national peers [14].

Psychological research testing the acculturative stress hypothesis among adolescents is limited on two main grounds that individually or in combination may explain some of the contrary findings found in the research literature. First, much research relied mainly on opportunistic small samples, as the case of [13;  $n = 202$ ] or [16;  $n = 576$ ], or large non-random non-stratified samples, as the case of

[3;  $n = 2702$ ] or [14]. On both sampling occasions, estimates of differences between immigrant and national adolescents can be impaired and therefore research conclusions may be inaccurate. Second, many psychological studies, including those relying on large scale random samples such as [15;  $n = 13,350$ ], did not use psychological and socio-cultural adaptation measures simultaneously and thus reported differences can be confused.

The first objective of the present study was to address these shortcomings and get a more robust outlook on immigrants versus national adolescents' adaptation. Towards this aim, this study employs population-based stratified random samples and uses both psychological and socio-cultural measures to test the acculturative stress hypothesis. The present study also advances knowledge on these issues using Australian samples, as little is systematically-known on immigrant and national adolescents' adaptation within Australia despite being a country with a long history of immigration.

A set of socio-demographic variables were identified in previous research as potentially related to affective and behavioural problems among adolescents such as adolescent's gender and age, mother's education, parent's marital status, household income, and socioeconomic disadvantage of residence area [3, 18, 19, 20, 21, 22, 23]. The second object of the present study was to specifically examine the relationships between these variables and adaptation problems among immigrant and national adolescents separately, aiming to disclose any distinct profile for each group. It must be noted that socio-demographic variables were also included as covariates in the model testing the acculturative stress hypothesis to statistically get 'pure' adaptation differences between immigrants and nationals.

## 2. Methods

Large scale stratified surveys routinely conducted by the New South Wales (NSW) Ministry of Health during the years 2005-2008 through the employment of computer assisted telephone interviewing (CATI), were utilised.

### 2.1. Sample

The target population of the surveys was all children aged 0-15 years living in households with private telephones in NSW. The sampling method relied on records from the Australia on Disk electronic white pages (phone book). Records were geo-coded using MapInfo mapping software and the geo-coded telephone numbers were assigned to statistical local areas and areas health services. Finally, numbers were randomly sorted and households were contacted using random digit dialling. For ethics reasons associated with conducting the survey on children in the cited age range, a parent (mother or father) or carer was selected as a proxy respondent. Trained interviewers at the NSW Ministry of Health administered the survey using CATI. Up to seven calls were made to establish initial con-

tact with a household, and 5 calls were made in order to contact a selected respondent.

Data were gathered on a total of 12,978 children aged 0-15 years in 2005-2008 with an overall participation rate of 60.95%. For the purposes of the current study, only adolescents with immigrant or national backgrounds aged 11-15 years were included ( $n = 5,779$ ). Immigration or national status was determined by adolescents' country of birth with adolescents born outside Australia to non-western European parents deemed immigrants ( $n = 638$ ) and those Australian-born to western-European parents representing the mainstream national population ( $n = 5054$ ). Ethics approval to carry out the surveys was obtained from the NSW Ministry of Health ethics committee.

## 2.2. Instruments

Demographic questions were asked to parents (or carers) about the adolescent's age, sex, and country of birth, mother's highest education (less than high school certificate, high school certificate, vocational certificate or diploma, tertiary degree), parents' marital status (married, divorce or other), annual household pre-tax income (less than \$20,000, \$20,000-\$40,000, \$40,000-\$60,000, \$60,000-\$80,000, more than \$80,000). In addition, a socioeconomic disadvantage quintile (1st quintile least disadvantaged through the 5th quintile most disadvantaged) according to area of residence was used to classify each participant.

Psychological adaptation was measured through emotional problems and socio-cultural adaptation through behavioural problems in the Strengths and Difficulties Questionnaire (SDQ) [24]. The SDQ consists of 20 items allocated to 4 subscales (5 items each): emotional problems, hyperactivity-inattention, peer problems, and conduct problems. An example item of the emotional problems subscale is, "Child is often unhappy, depressed, or tearful"; an example item of an example item of hyperactivity-inattention is, "Child is restless, overactive, or cannot stay still for long"; an example item of peer problems is, "Child often fights with or bullies other children"; and an example item of conduct problems is, "Child often lies or cheats". Parents (or carers) were asked to state whether the attribute specified in each item was present within the last six months on a 3-point scale from 0 = 'not true', 1 = 'somewhat true', to 2 = 'certainly true'. The 'at risk' score for each subscale is: 5-10 for emotional problems, 7-10 for hyperactivity-inattention, 4-10 for peer problems, and 4-10 for conduct problems [22, 23]. The SDQ was proven to be valid and reliable [18, 19, 25]. In the present study, Cronbach's alpha reliabilities for the scales ranged from .68 to .75.

## 2.3. Statistical Analyses

The survey samples were weighted to adjust for differences in the probabilities of selection among participants. These differences were due to the varying number of people living in each household, the number of residential telephone connections for the household, and the varying

sampling fraction in each health area. Post-stratification weights were used to reduce differing non-response rates among males and females and different age groups on the survey estimates. These weights were adjusted for differences between the age and sex structure of the survey samples and the Australian Bureau of Statistics 2006 mid-year population estimates for each area health service. All statistical analyses were conducted using SAS software version 9.2, which includes a family of procedures for analysing survey data, particularly SURVEYLOGISTIC. Weights of the data were included in all of these analyses. A significance level of 0.05 was used throughout the analyses.

## 3. Results

### 3.1. Sample Profile

After weighting, in the vast majority of cases (95.7% for the immigrant sample, 96.2% for the national sample), parents acted as proxy respondents. Mean age was 13.04 (SD = 1.43) for the immigrant sample and 13.06 (SD = 1.43) for the national sample. Sex consisted of 52.18% immigrant males and 47.82% immigrant females, and 51.25% national males and 48.75% national females. Of the immigrant adolescents, 84.91% were from married parents compared to 74.74% of the nationals, and 55.57% of their mothers had above high school education compared to 54.56% of the nationals'. 43.6% of the immigrants came from households with annual pre-tax income above \$60,000 compared to 53.5% of the nationals, and 36.54% of the immigrant adolescents and 36.81% of the nationals resided within the least socioeconomically disadvantage areas.

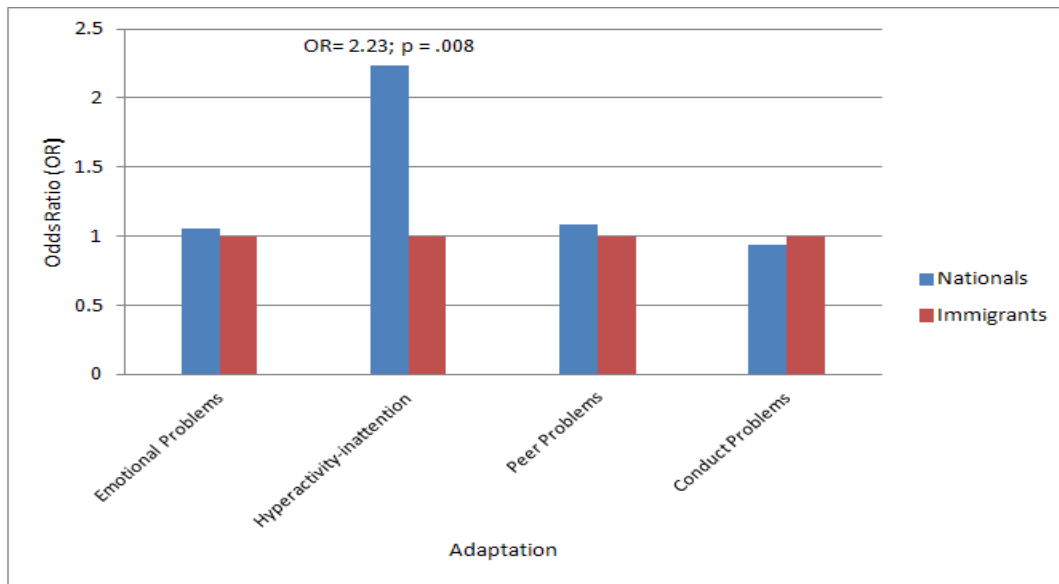
The weighted prevalence of emotional symptoms, hyperactivity-inattention, peer problems, and conduct problems were 14.44%, 4.48%, 8.68%, and 11.28% among immigrant adolescents, compared to 15.12%, 11.15%, 9.03%, and 9.55% among their national peers.

### 3.2. Adaptation Differences between Immigrants and Nationals

The psychological and socio-cultural adaptation differences between the two samples were investigated using univariate and multivariate logistic regression models. The aim of univariate logistics analyses was to examine the differences without controlling for demographics. Multivariate logistics analyses provided adjusted Odds Ratios for adaptation differences between the samples while controlling for demographic factors in the model.

Univariate logistic regression analyses revealed that the two samples differed to statistically significant degree in hyperactivity-inattention problems only, with nationals having greater odds than immigrants, OR = 2.67 (95% CI = 1.78—4.17),  $\chi^2_{21} = 18.566$ ,  $p = 0.0001$ . This difference persisted in multivariate logistic regression controlling for adolescent's sex and age, mother's education, parents' marital status, household income, and area of residence, adjusted OR = 2.23 (95% CI = 1.23—4.06),  $\chi^2_{21} = 6.96$ ,  $p =$

0.008 (refer to Figure 1).



**Figure 1.** Adaptation differences between immigrant and national adolescents controlling for adolescents' sex and age, mother's education, parents' marital status, household income, and area of residence; Immigrants is the reference group (OR = 1).

### 3.3. Socio-Demographic Correlates of Adaptation Among Immigrants and Nationals

Correlates of adaptation problems considered in this study were adolescent's sex and age, mother's education, parents' marital status, household income, and area of residence. The associations between each of these demographic variables and adolescents' adaptation problems were investigated using multivariate logistic regression models adjusting for the other variables as they could confound the relationships.

Analyses revealed that, among immigrant adolescents, hyperactivity-inattention problems could be predicted only by adolescents' sex,  $\chi^2_{21} = 5.73$ ,  $p = 0.01$  with males having greater odds than females, adjusted OR = 4.32 (95% CI = 1.31—14.32). Other adaptation problems could not be predicted by any demographic characteristics among immigrant adolescents.

Among national adolescents, in contrast, emotional problems, hyperactivity-inattention problems, conduct problems were statistically significantly associated with adolescents' sex. Specifically, male adolescents had greater odds for hyperactivity-inattention problems, adjusted OR = 2.30 (95% CI = 1.64—3.23),  $\chi^2_{21} = 23.21$ ,  $p = 0.000$ , than female adolescents, and decreased odds for emotional problems, adjusted OR = .70 (95% CI = .52—.91),  $\chi^2_{21} = 5.85$ ,  $p = 0.01$ , and for conduct problems, adjusted OR = .70 (95% CI = .49—.98),  $\chi^2_{21} = 3.88$ ,  $p = 0.048$ , than females. In addition, increased odds for conduct problems were observed among adolescents of mother with education of less than high school certificate (compared to tertiary education), OR = .70 (95% CI = .49—.98),  $\chi^2_{23} = 8.02$ ,  $p = 0.04$ , and decreased odds for peer problems were associated with household income of more than \$80,000 (compared to less

than \$20,000), OR = .53 (95% CI = .27—.99),  $\chi^2_{24} = 12.03$ ,  $p = 0.015$ .

## 4. Discussion

This research set out to investigate the acculturative stress hypothesis among immigrant adolescents in Australia, predicting that immigrants should have impaired psychological and socio-cultural adaptation. One measure of psychological adaptation, namely emotional symptoms, and three measures of socio-cultural adaptation, specifically hyperactivity-inattention, peer problems, and conduct problems were used in this study.

Overall, the weighted prevalence of emotional symptoms, peer problems, and conduct problems were close between immigrant adolescents and their national peers. The weighted prevalence of hyperactivity-inattention was the clear measure where the two groups differed, 4.48% for immigrant adolescents and 11.15% for nationals. Univariate logistic models confirmed this, revealing that national adolescents had almost three times greater odds for hyperactivity-inattention than immigrants. Even when controlling for a range of socio-demographic factors such as adolescent's sex and age, mother's education, parents' marital status, household income, and socio-economic disadvantage of area of residence that could confound the differences, still nationals had notably greater odds for hyperactivity-inattention than immigrants. The fact that socio-demographic measures were adjusted for in such analyses illustrates further the false prediction of the acculturative stress hypothesis.

Based on stratified random samples and robust statistical methods, these findings collectively strengthen previous research [14, 15, 16, 17] disconfirming the acculturative

stress hypothesis. This study indicates that immigrant adolescents have similar psychological adaptation as nationals and on certain socio-cultural adaptation measures they can even be better off. Future psychological research investigating the acculturative stress hypothesis is recommended to pay equal attention to psychological and socio-cultural adaptation rather than mingling both. Diversification of the measures for each type of adaptation may also be pursued for a stronger examination of the acculturative stress hypothesis.

When previous psychological research found that immigrants had better adaptation than nationals, the term counter-intuitive 'immigrant paradox' or 'healthy migrant effect' was used to denote this phenomenon [3, 14]. It is presumed to be counter-intuitive because better adaptation among immigrants despite the distress, challenges and difficulties inherent in intercultural contact seems to be the exception. This may also seem counter-intuitive as the economically disadvantaged status of immigrants in many industrialised countries such as the United States, Canada, and Australia, and immigrants' experiences of higher levels of discrimination were counted as factors associated with adverse adaptation outcomes [3, 14]. This phenomenon had gained recent support in the International Comparative Study of Ethnocultural Youth (ICSEY) carried out in 13 participant countries [14] using opportunistic samples. Researchers interested in the 'immigrant paradox' or 'healthy migrant effect' can find a marginal support for this in the present study particularly for socio-cultural adaptation. Only one socio-cultural adaptation measures (hyperactivity-inattention) out of three seems to qualify for this phenomenon.

Understanding which factors contribute to immigrant and national adolescents' adaptation would guide a proper intervention to sustain their adaptation. The second objective of the present study was to examine how socio-demographic characteristics relate to adaptation among immigrant and national adolescents and whether the two groups have distinct profiles that warrant special attention. This analysis was constrained to adolescent's sex and age, mother's education, parents' marital status, household income, and socio-economic disadvantage of area of residence as only these variables were available for analyses in this study.

Adjusting for other socio-demographic variables, multivariate logistic analyses revealed that immigrant adolescents' sex was the only factor associated with their adaptation. Specifically, immigrant adolescent males had notably greater odds for hyperactivity-inattention problems. This finding is in line with previous research showing generally that males tend to be more hyperactive than females [18, 19, 20, 21, 22, 23]. The other socio-demographic variables were not associated with any other adaptation outcome measure. While the relative homogeneity of immigrants' age and their parents' marital status in the data may explain their non-significant relationships with adaptation, it is surprising that mother's education, household income, and

socio-economic disadvantage residence area did not show any relationship with adaptation. The differences such factors can make to immigrants' adaptation might have been levelled out by a range of other factors that the study did not investigate. For instance, family functioning, social networking, community support, religiosity, personal growth, cultural identity attainment, and social inclusion, shown to contribute to wellbeing [14, 23, 27, 28, 29], may play a positive role in adolescents' psychological and socio-cultural adaptation. A study comparing the relative contribution of socio-demographic and these factors to immigrant adolescents' adaptation will better guide intervention programs.

While the predictability of sex for immigrant adolescents' adaptation seems limited to one (i.e. hyperactivity-inattention problems) out of three socio-cultural adaptation measures, sex was associated with psychological adaptation (i.e. emotional problems), and two out of three socio-cultural adaptation measures (i.e. hyperactivity-inattention problems and conduct problems) among Australian national adolescents. Specifically, adolescent males had lower odds for emotional problems and greater odds for hyperactivity-inattention problems and conduct problems. Adolescents' socio-cultural adaptation was further associated with mother's education and household income. Specifically, mothers' lower education (less than high school) was associated with national adolescents' increased odds for conduct problems and higher household income (above \$80,000) was associated with adolescents' decreased odds for peer problems. While these findings accord generally with previous research [18, 19, 20, 21, 30], the present study indicates that sex seems to be more predictive of psychological and socio-cultural adaptation among Australian national adolescents than the other socio-demographics.

## 5. Conclusions

This study disconfirms the acculturative stress hypothesis and indicates that the socio-cultural adaptation of immigrant adolescents can even be better compared to national peers. Attention needs to be paid to factors sustaining immigrant positive adaptation. In this regard, socio-demographic variables seem limited in explaining the psychological and socio-cultural adaptation of immigrant adolescents, and thus more attention should be appointed to social and individual level factors that can sustain or promote adaptation further. Certain socio-demographic variables seem to play a better role in profiling the psychological and socio-cultural adaptation of national adolescents. Such factors should be taken into account when developing programs aiming to improve national adolescents' adaptation.

### Limitations

Two caveats must be noted. First, the study mainly relied on parents' (and carers') self-reports of adolescents' adaptation. Second, despite reliance on large scale stratified population surveys, the cross-sectional nature of the study

means that findings must not be interpreted as cause and effect.

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